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DEPARTMENT

OF

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QUARTERLY BULLETIN

ELECTRICAL

INSPECTION

BRANCH

APRIL 1960

REGULATIONS PERTAINING TO CERTIFICATES ISSUED UNDER THE "ELECTRICAL PROTECTION ACT".

Subsequent to April 1st, 1960, electrical workers may only engage in, or follow, the occupation of electrician if they are the holders of certificates issued under the "Electrical Protection Act", or registered in accordance with the "Alberta Apprenticeship Act" and Regulations. Electricians who have not already arranged for the replacement of their "Tradesmen's Qualification Act" Certificate of Proficiency with one issued under the "Electrical Protection Act" must do so without delay in order to maintain valid certification in the electrical trade.

Employers of electrical workers are advised that the Regulations Governing the Certification of Electrical Workers require that on and after April 1960 no person, or firm, shall authorize, hire, or employ any person who is not the holder of a subsisting certificate under this Act, to engage in or undertake any electrical work coming within the scope of Regulations under the "Electrical Protection Act" with the exception of transmission and distribution power lines.

This requirement in no way affects the employment of electrical apprentices under the Regulations of the "Apprenticeship Act".

THERMOPLASTIC INSULATED CONDUCTORS IN SIZES LARGER THAN 4/0 (TABLE 5A).

When Table 5A was initially formulated and adopted, the Canadian Electrical Code in effect only permitted the use of thermoplastic insulated conductors of the T or TW type in sizes larger than 4/0 AWG in conduits on a special permission basis. Due to modifications in the physical characteristics of thermoplastic insulating compounds this limitation was subsequently deleted from the Canadian Electrical Code Rules. Similarly the restrictions imposed on the use of thermoplastic conductors larger than 4/0 AWG, as indicated by the footnotes to Table 5A, have been removed.

In accordance with the above, where thermoplastic insulated conductors larger than 4/0 are involved the permissible number of conductors of one size only that may be installed in conduit is based on the allowable percentage of conduit fill as given in the bottom line of Table 8 of the Seventh Edition of the Canadian Electrical Code. The cross sectional areas of conductors must be based on conductors having rubber insulation, as required by Rule 4-016(2)(b) of the Seventh Edition of the Code.

When thermoplastic insulated conductors of more than one size are to be run in conduit, the size of conduit required should be determined as outlined above. That is, the total cross sectional area of the conductors should be calculated

on the basis of rubber insulation (Table 10) and the allowable percentage of conduit fill determined by reference to the bottom line of Table 8.

CONDUCTORS SUITABLE FOR USE WITH FLUORESCENT LIGHTING EQUIPMENT (Canadian Electrical Code Rule 12-128(2)).

From the numerous inquiries received concerning the types of conductors acceptable for use in the wiring of fluorescent fixtures, and the number of cases where conductors with insulation unsuitable for the application have been used, it is apparent that clarification of the intent of Rule 12-128(2) is essential.

This rule indicates that conductors intended for use in raceways and which are extended into, and contained in, the same raceways as auxiliaries for fluorescent lighting must be of the thermoplastic and asbestos insulated type having a voltage rating of 600 (volts). In addition, the conductors must have a maximum allowable conductor temperature of not less than 90°C.

Reference to Table 19, of the Canadian Electrical Code, will show that to satisfy the beforementioned requirements, the conductors used for wiring fluorescent lighting equipment must be of a type such as A1 or A18, as listed on Page 323.

Instances have been noted where fixture and equipment wires such as types "GTF", "TEW" etc. have been proposed, and in some cases used, for raceway wiring. These materials are approved only for the wiring of fixtures and equipment such as ranges etc. and must not be considered as acceptable for general purpose use in raceways.

ACCEPTABLE SIZES OF CONDUIT FOR USE AS A SERVICE MAST.

As a general standard it is essential that sections of conduits intended to serve as service masts have a minimum internal diameter of at least two inches. In view of the number of requests that have been received for permission to use conduits of smaller sizes for the support of service drops, this subject was discussed in detail at the recent Alberta Provincial Code Committee Meeting.

The results of the deliberations on existing service stack requirements, and test data available, at this time, indicate that under certain conditions conduit smaller than two inches in internal diameter may serve satisfactorily as service conductor supports. On the basis of the beforementioned features, the acceptance of conduit of the sizes indicated below for the support of pre-assembled multi conductor service drop cables seems warranted:

1-1/2 inch conduit when extended an unsupported length of not more than two feet above the roof surface.

1-1/4 inch conduit when extended an unsupported length of not more than eighteen inches above the roof surface.

These reduced sizes of conduits may only be considered as having sufficient strength to support without physical distortion, under the usual adverse ice and wind conditions encountered in this Province, the stresses that may be imposed by pre-assembled multi conductor service drop cable in sizes no larger than No. 4 AWG. Also, for spans not exceeding 100 feet in length when sagged not less than 18 inches at 60^{o}F.

Service drops and supporting materials other than those mentioned will only be acceptable by special permission on an individual basis.

METHODS ACCEPTABLE FOR THE ATTACHING OF GROUNDING CONDUCTORS TO ELECTRODES AND EQUIPMENT.

Copper grounding straps are frequently found used for purposes for which they are not intended.

To comply with Canadian Electrical Code Rule 10-124 the service grounding conductor must be connected to the grounding electrode with an approved type bolted cast metal clamp, a pipe fitting threaded into the pipe, or by other equally substantial approved means. To meet the intent of Rule 10-122, bonding jumpers around a water meter, union, or other readily separable fitting, on the street side of the point of attachment of the service grounding conductor, must also utilize an approved type bolted cast metal clamps. The connection for the grounding conductor must be of a type that does not require soldering.

Copper ground straps, which are designed for light duty grounding, are not acceptable for connecting service grounding conductors, or bonding associated therewith. They may, however, be utilized for connecting equipment grounding conductors to metallic water piping etc. This grounding method is only considered satisfactory when the equipment to be grounded is supplied by a branch circuit where the maximum fault current flow is suitably limited for the fittings used.